

Appendix 2.

Ecological Reference Worksheet

Author(s) / participant(s): Don Ashby Jr., Bob Moorhead, Richard Spencer, Tim Henry, Ty Carter, Jim Norris, John Hartung

Contact for lead author : Don Ashby Jr. **Reference site used? Yes/No** No

Date: 3/21/2005 **MLRA:** 70 **Ecological Site:** Limestone Hills CP-3 This must be verified based on soils and climate (see Ecological Site Description). Current plant community cannot be used to identify the ecological site.

Indicators: For each indicator, describe the potential for the site. Where possible, (1) use numbers, (2) include expected range of values for above and below average years for <u>each</u> community within the reference state, when appropriate & (3) site data. Continue description on separate sheet.	Indicator Weight
1. Number and extent of rills : Rills may be present on this site but should not dominate the site.	
2. Presence of water flow patterns: Water flow patterns may be present on this site due to these soils having low infiltration capacity and may have a large number of natural flow patterns.	
3. Number and height of erosional pedestals or terracettes: None	
4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground) : Bare ground will be present up to 35%. Bare patches should be less than 12 inches in diameter.	
5. Number of gullies and erosion associated with gullies: If unprotected by vegetative cover, these soils are highly susceptible to gullies and erosion associated with gullies.	
6. Extent of wind scoured, blowouts and/or depositional areas: Soil blowing hazards can be moderate on this site when these soils are unprotected by vegetative cover.	
7. Amount of litter movement (describe size and distance expected to travel) : Fine (plant material) litter movement 3-6 feet can be expected with increased bare ground.	
8. Soil surface (top few mm) resistance to erosion (stability) values are averages - most sites will show a range of values for both plant canopy and interspaces, if different): Anticipated to be 1-3 at the surface and subsurface in the interspaces and 2-3 at the surface and subsurfaces under vegetation.	
9. Soil surface structures and SOM content (include type and strength of structure, and A-horizon color and thickness for both plant canopy and interspaces, if different) : Soils are typically shallow over limestone, clay loams to sandy loams and frequently stony, gravelly, or cobbly, light in color with the A horizon 1-2 inches in depth. Soils well drained with moderate to moderately rapid permeability. Water-holding capacity is very low.	
10. Effect of plant community composition (relative proportion of different functional groups) & spatial distribution on infiltration & runoff: Grasses and forbs account for 73% of the annual herbaceous production for this site and make up 15% of the site composition. Infiltration is best with low intensity rainfall events. Runoff can be moderate during high intensity storms and accumulative rainfall events.	
11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): None	
12. Functional/Structural Groups (list in order of descending dominance by above-ground weight using symbols: indicate much greater than (>>), greater than (>), and equal to (=) : Warm Season bunch grasses>Warm Season stolon grasses=Cool Season bunch grasses>Shrubs(Oaks, Catclaw, Sumac), Forbs(Mariola, Paintbrush)	
13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence) : Most of the perennial grasses, forbs and shrubs are long lived. Extended drought periods tend to cause high mortality rates in the grass species and some forbs. Shrub mortality can occur with severe, multiple year droughts.	
14. Average percent litter cover (6-10%) and depth (0.78 inches). Percent litter and depth will increase with multiple, above average rainfall years.	
15. Expected annual production (this is <u>TOTAL</u> above-ground production, not just forage production): 400 lbs/ac in low precip years, 800 lbs/ac in average precip years, 1200 lbs/ac in above average years. Grass/grasslikes make up 65% of the total annual production.	
16. Potential invasive (including noxious) species (native and non-native). List species which characterize degraded states and which, after a threshold is crossed, "can, and often do , continue to increase regardless of the management of the site and may eventually dominate the site": Juniper, Pinyon, Algerita, and oak species have the potential for invasion when these sites deteriorate during drought conditions and overgrazing.	
17. Perennial plant reproductive capability : Weather related and natural disease can result in reduced reproductive capabilities. If tree/shrub components dominate the site it can reduce reproductive capabilities of the native grasses and forbs.	

Photograph (s)

MLRA : 70

Date :

Ecological Site : Limestone Hills CP-3

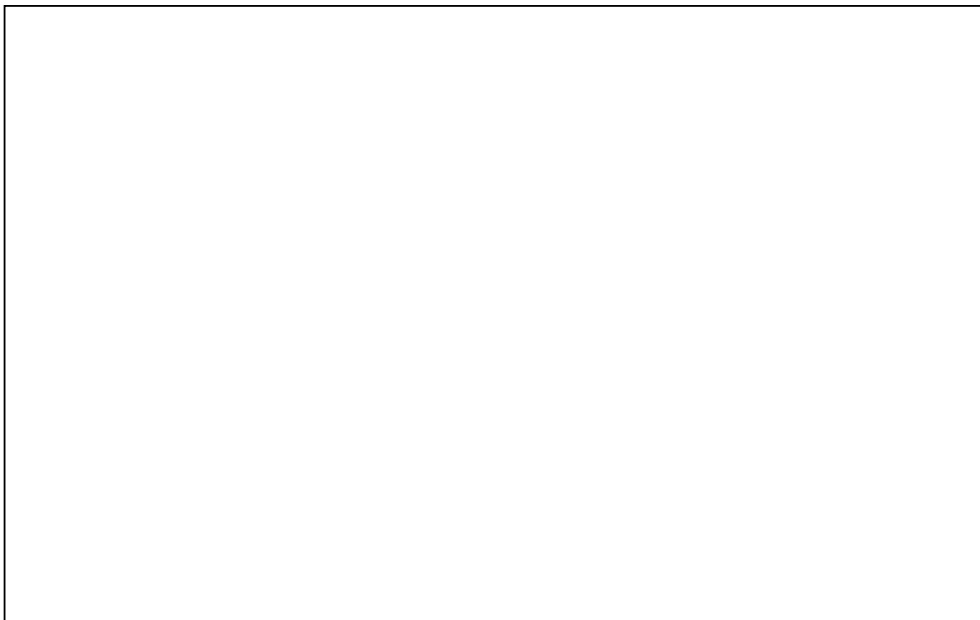


Photo # 1

Comments :

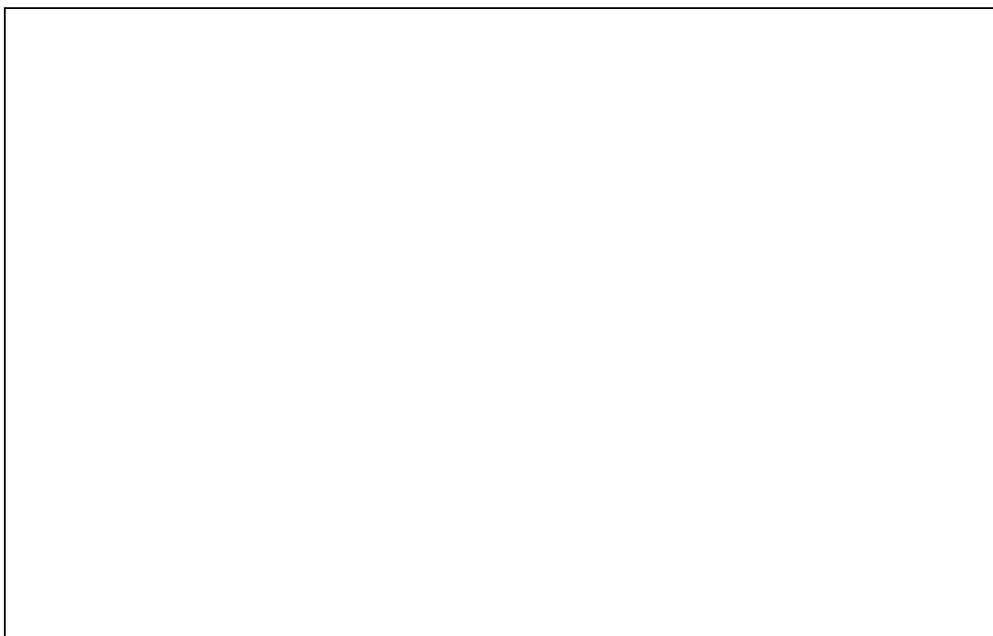


Photo # 2

Comments :

Appendix 4.

Functional / Structural Groups Worksheet

State	NM	Office	Carrizozo	Ecological Site	Limestone Hills CP-3
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Observers	<u>Don Ashby Jr., Bob Moorhead, Richard Spencer, Tim Henry, Ty Ca</u>	Date	<u>3/21/05</u>
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Indicate whether each "structural/functional group" is a Dominant (D)(roughly 40-100% composition), a**Sub-dominant (S)** (roughly 10-40%) composition) a**Minor Component (M)** (roughly 2-5% composition), or a**Trace Component (T)** (<2% composition) based on weight or cover composition in the area of interest (e.g., "Actual ² column) relative to the "Potential ² column derived from information found in the ecological site/description and/or at the ecological reference area.

Biological Crust 3 dominance is evaluated solely on cover not composition by weight